

What is known about the Impact on Industry of the use of Knowledge Providers?

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In recent years, the interest regarding innovation-related links between firms and other organizations has grown. This growing interest is motivated by the acknowledgment that organizational competitiveness depends to a great extent on innovation performance, which is heavily influenced not only by the firm's own capacities, but also by the ability to effectively use the knowledge embedded in other organizations. In fact, a sharp tendency for increasing utilization of external knowledge has been observed using different indicators, such as external R&D expenses, collaboration agreements, licensing, co-patenting or co-publishing. This tendency is especially greater when knowledge providers are considered. Knowledge providers are those organizations mainly focused on knowledge-intensive relationships, such as consultancy firms, universities, public research centers and private research institutes. Links with regular providers, customers or competitors were excluded, as well as the relationship with other firms from the same group. As a consequence, academics from different fields (such as economics, management or geography) have paid increasing attention to analyzing the impact from the links between firms and knowledge providers, although little cross-fertilization has been observed across the different studies.

The main aim of this study is to make a synthesis of the empirical state-of-the-art literature about the impact on industry of the use of knowledge providers. For doing so several steps were followed. First a sample of key articles was analyzed to seek for keywords of value for this research in order to increase the search efficiency. These keywords had to analyze (i) impact assessment, (ii) on the private sector, (iii) due to a formal relationship and (iv) based on knowledge and innovation. There were no constraints to a particular field to overcome one of the main problems of previous revisions focusing only on one stream of studies. The search retrieved a total of 7.104 articles. After these articles were classified according to the inclusion criteria, they were grouped and analyzed based in the focus of their research: (i) those studying the determinants of the use of knowledge providers; (ii) those addressing the different impacts (technical, economic, etc.) on firms out of the use of knowledge

providers, and (iii) those aiming to analyze the determinants of the intensity of impact of knowledge providers.

Out of the analysis of the literature, it is possible to assess (i) how the scientific community has addressed the study of the impact of knowledge providers, and (ii) what is currently known about it. Regarding the approach followed by researches, it is possible to highlight some preferences in the literature. Above all, it is important to say that the scientific community has focused its attention in the study of the impact of the use of knowledge providers. Topics like the determinants of use and the determinants of the impact of knowledge providers come in second and third place respectively. Also there are preferences for assessing the impact on firms from the manufacturing sector and firms using universities as knowledge providers. In addition to the preferences from researchers, it is important to point out some improvement opportunities for future studies. In most of the articles, the utilization indicators are generally a merge indicator of several types of knowledge providers. It would be of great value to foster the study of the use of individual types of knowledge providers. This would improve the efficiency of the allocation of public and private resources. Moreover issues like endogeneity and selection are common in the literature. In just a few articles proper techniques are employed. To incentive the use of such techniques would allow strengthening the body of knowledge.

About the main results of the review of the literature; one of the most interesting conclusions addresses the inverse effect of the same determinant over the use and impact of knowledge providers. In other words, a characteristic of the firm can be positive for the use of knowledge providers and at the same time it can have a negative influence over the intensity of the impact of the use of knowledge providers. This conclusion can have major implications for research and innovation policies fostering the use of knowledge providers. Other important conclusions focus on the most studies impacts of the use of knowledge providers and their effect upon industry.